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| 09/923,647      | 08/07/2001  | Roman J. Hamerski    | 12263.15            | 1145             |

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EXAMINER

SOWARD, IDA M

ART UNIT PAPER NUMBER

2822

DATE MAILED: 02/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/923,647

Applicant(s)

HAMERSKI ET AL.

Examiner

Ida M Soward

Art Unit

2822

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-15 and 21-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 21-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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## DETAILED ACTION

This Office Action is in response to the Applicants' amendment filed December 13, 2002.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-5 and 22 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 3-4 and 10-11 of U.S. Patent No. US 2002/0163059 A1. Although the conflicting claims are not identical, they are not patentably distinct from each other because Hamerski teaches an electrical semiconductor device comprising: a substrate **52** of relatively high resistivity material of one conductivity type having opposing first and second surfaces, the first surface being etched, wherein the etched first surface of the substrate forms a well that receives the diffused layer that reduces an area of the relatively high resistivity material

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in the substrate to reduce a resulting electric field; a layer **56** of relatively low resistivity material of the one conductivity type and having one surface substantially contiguous to the first surface of the substrate, wherein the layer is diffused in the first surface of the substrate; and an epitaxial region 54 of relatively low resistivity material of a conductivity type opposite to the one conductivity type and having one surface substantially contiguous to the second surface of the substrate (Figure 4, page 3, paragraph [0030]). Hamerski further teaches the epitaxial region including a germanium stress-relieving dopant (page 4, claims 10-11). In regard to how the layer was grown, note that a “product by process” claim is directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ 15 at 17 (footnote 3). See also In re Brown, 173 USPQ 685; In re Luck, 177 USPQ 523; In re Wertheim, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); In re Fitzgerald, 205 USPQ 594, 596 (CCPA); In re Marosi et al., 218 UPSQ 289 (CAFC); and most recently, In re Thorpe et al., 227 UPSQ 964 (CAFC, 1985) all of which make it clear that it is the final product per se which must be determined in a “product by process” claim, and not the patentability of the process, and that, as here, an old or obvious product produced by a new method is not patentable as a product, whether claimed in “product by process” claims or not. Note that Applicant has burden of proof in such cases as the above case law makes clear.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6-9, 12, 15 and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blackstone et al. (5,164,813).

Blackstone et al. teach an electrical semiconductor device comprising: an epitaxial layer **361** of relatively high resistivity material of one conductivity type and having opposing first and second surfaces, wherein the second surface is etched, and the dopant region **295** is diffused in the second surface of the epitaxial layer **293**; the etched second surface of the epitaxial layer of relatively high resistivity material forms a well that reduces an area of the relatively high resistivity material in the second surface of the epitaxial layer of relatively high resistivity material to reduce a resulting electric field; the second surface of the epitaxial layer of relatively high resistivity material receives a lesser amount of diffused material to form a well that reduces an area of the relatively high resistivity material in the second surface of the epitaxial layer of relatively high resistivity material to reduce a resulting electric field; a substrate **360** of relatively low resistivity material of a conductivity type opposite to the one conductivity type and having a surface substantially contiguous to the first surface of the epitaxial layer; and a dopant region **365** of relatively low resistivity material of the one conductivity type having a surface substantially contiguous to the second surface of the epitaxial layer. In regard to how the layer was grown and how the silicon oxide mask is applied, note that a "product by process" claim is directed to the product per se, no matter how actually

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made, In re Hirao, 190 USPQ 15 at 17 (footnote 3). See also In re Brown, 173 USPQ 685; In re Luck, 177 USPQ 523; In re Wertheim, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); In re Fitzgerald, 205 USPQ 594, 596 (CCPA); In re Marosi et al., 218 USPQ 289 (CAFC); and most recently, In re Thorpe et al., 227 USPQ 964 (CAFC, 1985) all of which make it clear that it is the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that, as here, an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that Applicant has burden of proof in such cases as the above case law makes clear. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify diode structure of the epitaxial layer second surface of Figure 34 by incorporating the epitaxial layer second surface of Figure 24 as taught by Blackstone et al. to obtain a resistance to mechanical, thermal and reverse breakdown stresses.

Claims 10-11 and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blackstone et al. (5,164,813) as applied to claims 6-9, 12, 15 and 23-24 above, and further in view of Hamerski (US 2002/0163059 A1). Blackstone et al. and Hamerski teach all mentioned in the rejection above. However, Blackstone et al. and Hamerski fail to teach an epitaxial region including a germanium stress-relieving dopant. Hamerski teaches an epitaxial region including a germanium stress-relieving dopant (page 4, claims 10-11). Since Blackstone et al. and Hamerski are both from the same field of endeavor (high voltage diodes), the purpose disclosed

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by Hamerski would have been recognized in the pertinent art of Blackstone et al. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the high voltage diodes of Blackstone et al. by incorporating the germanium stress-relieving dopant of Hamerski to increase operational voltage.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-15 and 21-24 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of the art with respects to high voltage diodes:

Bauer (5,619,047)

Pezzani (5,631,181)

Quoirin (6,031,254)

Tokunoh et al. (6,020,603).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ida M Soward whose telephone number is 703-305-3308. The examiner can normally be reached on Monday - Thursday, 6:30 am to 5:00 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on 703-308-4905. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

ims  
February 24, 2003



AMIR ZARABIAN  
SUPERVISORY PATENT EXAMINER  
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